

AMENDMENTS TO THE CLAIMS:

This listing of claims replaces all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A system comprising:

a first sensor to detect at least one of a magnetic field and an electrical field, the first sensor comprising first outputs to ~~that~~ output first sensor signals when a field is detected;

a first signal modulator to receive ~~that receives~~ first sense signals that correspond to the first sensor signals from the first sensor, the first signal modulator having first and second control states, wherein in the first control state, the first signal modulator is configured to output ~~outputs~~ the first sense signals, and, wherein in the second control state, the first signal modulator is configured to output ~~outputs~~ inverted first sense signals; ~~and~~

a device configured to receive and process ~~that receives and processes~~ the first sense signals or the first inverted sense signals;

a second sensor to detect at least one of a magnetic field and an electrical field, the second sensor comprising second outputs to output second sensor signals when a field is detected; and

a second signal modulator to receive second sense signals that correspond to the second sensor signals from the second sensor, the second signal modulator having the first and second control states, wherein in the first control state, the second signal modulator is configured to output the second sense signals, and, wherein in the second control state, the second signal modulator is configured to output the inverted second sense signals;

wherein the device is configured to receive and process the second sense signals or the second inverted sense signals.

2. (Currently Amended) The system of claim 1, wherein the first sensor and the second sensor comprise ~~comprises a Hall sensors sensor.~~

3. (Currently Amended) The system of claim 1, further comprising:

~~an~~ a first operational transconductance amplifier between the first sensor and the first signal modulator, the first operational transconductance amplifier ~~to generate~~ generating the first sense signals from the first sensor signals; and

a second operational transconductance amplifier between the second sensor and the second signal modulator, the second operational transconductance amplifier to generate the second sense signals from the second sensor signals.

4. (Currently Amended) The system of claim 1 ~~[[11]]~~, wherein the first signal modulator and the second signal modulator are connected in parallel.

5. (Currently Amended) The system of claim 1, further comprising:  
a first control logic circuit in communication with the first signal modulator; and  
a second control logic circuit in communication with the second signal modulator.

6. (Currently Amended) The system of claim 5, wherein the first and the second signal ~~modulator is~~ modulators are controlled by a digital control word input to the corresponding ones of the control logic circuits ~~circuit~~.

7. (Currently Amended) The system of claim 1 ~~[[11]]~~, wherein the first sensor and the second sensor are arranged in a plane.

8. (Currently Amended) The system of claim 12 wherein the first sensor, the second sensor and the plural sensors are arranged in rows and columns that are orthogonal.

9. (Currently Amended) A method of operating a system comprised of:  
plural sensors to detect at least one of a magnetic field and an electrical field, each of the plural sensors comprising outputs ~~that~~ to output sensor signals when a field is detected;

plural signal modulators ~~that~~ to receive sense signals that correspond to sensor signals from corresponding ones of the plural sensors, each of the plural signal modulators having first and second control states, wherein in the first control state, each signal modulator is configured to output ~~outputs~~ sense signals, and, wherein in the second control state, each signal modulator is configured to output ~~outputs~~ inverted sense signals; and

a device to receive and process ~~that receives and processes~~ the sense signals or the inverted sense signals, the method comprising:

reading and storing a first system signal from the device in a case that the system is in a first configuration;

changing a configuration of the system to a second configuration that is different from the first configuration;

reading and storing a second system signal from the device when the system is in the second configuration (~~K2~~); and

performing an arithmetic operation using the first system signal and the second system signal.

10. (Previously Presented) The method of claim 9, wherein after reading and storing the second system signal but before performing the arithmetic operation, the method further comprises:

changing a configuration of the system and reading and storing additional system signals corresponding to changes in the configuration;

wherein the arithmetic operation is performed using the additional system signals.

11. (Canceled)

12. (Currently Amended) The system of claim 1, further comprising:

plural sensors to detect at least one of a magnetic field and an electrical field, each of the

plural sensors comprising outputs ~~to that~~ output sensor signals when a field is detected;

plural signal modulators ~~to that~~ receive sense signals that correspond to sensor signals from corresponding ones of the plural sensors, each of the plural signal modulators having the first and second control states, wherein in the first control state, each signal modulator is configured to output ~~outputs~~ sense signals, and, wherein in the second control state, each signal modulator is configured to output ~~outputs~~ inverted sense signals;

wherein the device is configured to receive and process ~~receives and processes~~ the sense signals or the inverted sense signals.

13. (New) The system of claim 2, wherein the Hall sensors comprise silicon sensors.

14. (New) The method of claim 9, wherein performing the arithmetic operation comprises using a trigonometric function.